Marsh Grass Choices

Compare how two ways of reproducing help plants survive.

7.13.a "Construct an explanation of the advantages and disadvantages of asexual and sexual reproduction."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline advantages, circle disadvantages, and write A or S beside each mark to show whether it describes asexual or sexual reproduction.

Two Ways to Grow a Marsh

1 At low tide, a patch of cordgrass holds the muddy edge of a coastal marsh. Some stems grow from underground rhizomes, which are stems that spread through the soil. A rhizome can send up new shoots without pollen or seeds. This is asexual reproduction: one parent makes new plants with nearly identical genes. Shoots can fill nearby bare mud quickly, even when no other cordgrass is close. However, new shoots stay near the parent, and their similar genes may leave the patch vulnerable to the same disease.

2 Cordgrass also makes flowers. When pollen from one plant fertilizes an egg in another plant's flower, a seed can form. A seed grows into an offspring with a mix of genes from both parents. This sexual reproduction creates differences among young plants; some may survive a new disease or a shift in salt levels better than others. Seeds can also float to open ground farther away. But flowers must receive suitable pollen, and making seeds may take more time and energy than growing nearby shoots from rhizomes.

3 Imagine a storm tears away part of the marsh. Rhizomes along the edge can replace nearby stems before drifting seeds take root. If the water later becomes much saltier, though, a patch of nearly identical plants may respond in similar ways and lose many stems. Seeds made by sexual reproduction might include plants that tolerate the change, but others might be less suited to the marsh. Neither method wins in every situation: speed helps when space opens nearby, while variation may matter when conditions change.

2 ANSWER WITH EVIDENCE

Use the passage

1. How does growing from rhizomes help cordgrass after a storm, and what limits where the new shoots can grow?

2. Why could the same disease harm many shoots that grew from rhizomes in one patch?

3. How could sexual reproduction help cordgrass if salt levels change? Give one reason it might not fill bare mud as quickly as rhizomes.

4. A cordgrass seed floats to open ground far from its parent. Explain one benefit and one risk of relying on sexual reproduction to start a patch there.

3 YOUR TURN

Your own words

A farmer can grow strawberry plants from runners or from seeds, and a new disease has appeared in the greenhouse. In four or five sentences, recommend how to grow plants now and for future crops, explaining one advantage and one disadvantage of each method.

Marsh Grass Choices

PART 1 · READ AND MARK

Underline advantages, circle disadvantages, and write A or S beside each mark to show whether it describes asexual or sexual reproduction. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How does growing from rhizomes help cordgrass after a storm, and what limits where the new shoots can grow?	**Rhizomes can quickly replace stems in nearby bare mud, but their new shoots stay near the parent plant.**
2	Why could the same disease harm many shoots that grew from rhizomes in one patch?	**The shoots have nearly identical genes, so they may share a weakness to the disease.**
3	How could sexual reproduction help cordgrass if salt levels change? Give one reason it might not fill bare mud as quickly as rhizomes.	**Some offspring may have genes that help them tolerate the new salt level. Making seeds may take more time than growing shoots from rhizomes, and flowers need suitable pollen.**
4	A cordgrass seed floats to open ground far from its parent. Explain one benefit and one risk of relying on sexual reproduction to start a patch there.	**A seed can reach ground beyond the parent patch. The new plant might be less suited to the marsh.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

I would use runners to fill empty greenhouse beds quickly because they can grow new plants without pollen. Those plants might share a weakness to the new disease because they have similar genes. I would also grow some plants from seeds so future crops might include plants that resist the disease. Making seeds may take more time, and some seedlings might not grow well in the greenhouse.

Accept other supported advantages and disadvantages, such as seeds reaching farther ground or runners growing without another parent. For the open task, look for a cause-and-effect explanation of one advantage and one disadvantage of each method, applied to the greenhouse.